

Program Management Review

15 Oct 2007 4QFY07



Dr. William F. Denig, Chief Solar & Terrestrial Physics Division NOAA/NESDIS/NGDC 303 497-6323

William.Denig@noaa.gov







STP Program Overview

Milestones & Performance Measures

Upcoming Events

Accomplishments

Special Interest Items

ssues



PersonnelSTP Program Overview



Solar & Terrestrial Physics Division
William Denig/F, Chief
Janet Brown/F, Secretary
Karen Horan/F, Physical Science Tech
Craig Clark/F, Scientific Data Tech

Space Environment Group (SEG)

Eric Kihn/F, Team Lead

- Terry Bullett, AFRL
- Ray Conkright/C
- Ed Erwin/F
- Justin Mabie/C
- Rob Redmon/F
- Herb Sauer/C
- Dan Wilkinson/F
- Jim Manley/C
- Erin Rowland/S

Earth Observation Group (EOG)

Chris Elvidge/F, Team Lead

- Kim Baugh/C
- Ara Howard/C
- Ben Tuttle/C
- Tilottama Ghosh/C
- Vacant Data Manager/F

<u>Key</u>

F – Federal

C - CIRES/CIRA

S – Student

Earth Geophysics Group (EGG)

Vacant/F, Team Lead

- Patrick Alken/C
- Stefan Maus/C
- Rob Prentice/C
- Andrew Kimbrel/S
- Don Herzog/C
- Fran Coloma/C
- Manoj Nair/C
- Andrea Bilich, NGS



Personnel Changes STP Program Overview



Gains

- Manoj Nair (EGG) CIRES PRA
- Tilottama Ghosh (EOG) CIRES PRA
- Andrea Bilich (EGG) NGS GPS Physicist (Fed)

Losses

Terry Bullett (SEG) – AFRL position re-alignment; Status: TBD

Vacancies

- SEG Space Physicist Currently on hold; CIRES PRA
- STP Real-time Data Manager Currently on hold; CIRES PRA
- EOG Hayes Replacement Deferred

Inbound

Non Real-time Data Manager (ZP-1301) – David Fischman: TBD

Pending

NGS CORS Technician – Pending – NGS action (FY08 or later)



MOUs / MOAs Status STP Program Overview



STATUS

Scope	Team	Туре	Partner	NOAA Legal	DOC Legal	NGDC Signed	Partner Signed	Start	End	Status	
DMSP Archive	SEG	MOA	DMSP	Χ	Χ	Χ	Χ	30-Mar-07	30-Sep-09	G	In place - nothing to report
SWx Climatology	SEG	MOU	AFCCC	Χ	Χ	Χ	Χ	27-May-04	01-Oct-14	G	In place - nothing to report
Ionospheric Data	SEG	MOU	AFWA	Х	Χ	Х	Χ	21-Aug-06	21-Aug-11	G	In place - nothing to report
NASIC	EOG	MOU	NASIC	Х	Χ	Х	Х	09-Mar-06	01-Jan-11	G	In place - nothing to report
World Mag Model	EGG	MOU	NGA						30-Sep-12	Υ	Economy Act considerations
CORS Support	EGG	n/a	NGS	n/a	n/a				30-Sep-08	Υ	In NGS coordination
Ionosonde Install	SEG	MOU	USAFA							Υ	Initial draft - NEXION considerations
Ionosonde Site	SEG	MOU	USGS		·					Υ	Initial draft - NEXION considerations



CDMP FY07 StatusSTP Program Overview



Subject	FY07 - Unfuunded	FY07 - Continuing	POC	Contractor (\$K)	NGDC (\$K)	% Expended (as of 30sep07)
Heat capacity mapping mission (I6)		Χ	Elvidge	26.0	2.6	TBD
DMSP film scanning (L3)		Χ	Elvidge	560.0	56.0	100.9%
DMSP P/L activiation messages	Χ		Elvidge	-	-	
Historical solar spectral data (L16)		Χ	vice Coffey	50.0	5.0	31.8%
Cosmic rays - Forbush archives	Χ		vice Coffey	-	-	
Historical solar observations (L18)		Χ	vice Coffey	87.0	8.7	100.9%
Historical ionosonde records (L7)		Χ	Redmon	71.0	7.1	86.4%

FY08 distributions pending CDMP funding (per Tom Ross)

- Fund new starts if funding levels restored
- Else maintain current level of effort if possible

The CDMP DMSP Nighttime Lights project will be a featured video in the contractor's 2007 annual report



FY08 Financial (Planning)



STP Division Overview

FTEs					
	STP	EGG	EOG	SEG	Sum
Federal FTEs	3.85	0.40	1.40	4.35	10.00
CIRES FTEs		5.65	3.25	3.18	12.08
Contractor FTEs		0.50			0.50
Sub-Total	3.85	6.55	4.65	7.53	22.58
			Total Pro	gram FTEs:	22.58
Income					
	STP	EGG	EOG	SEG	Sum
Carryover (from FY07)				170,403	170,403
Base Fund Allocation					C
Rent Initiative					C
Base Travel Allotment	6,182	0	5,400	8,988	20,570
Other NOAA		264,756	110,000	277,550	652,306
non-NOAA		626,000	550,000	170,000	1,346,000
Sub-total:	6,182	890,756	665,400	626,941	2,189,278
			Total Progr	am Income:	\$2,189,278
Expenses					
	STP	EGG	EOG	SEG	Sum
OD Overhead	0	62,600	55,000	17,000	134,600
Federal Salaries	481,697	74,358	333,102	794,067	1,683,224
CIRES Salaries	0	449,264	340,115	341,570	1,130,948
Other CIRES	0	39,247	4,700	17,817	61,764
Contracts	250	91,050	0	246,000	337,300
Approved Fed Travel (Base)	6,182	0	5,400	8,988	20,570
Approved Fed Travel (Customer)	1,490	1,034	11,800	22,012	36,33
		0	12,100	4,403	16,503
Assorted Costs	0	U	:=,:00	,	
Assorted Costs Publications	0	0	5,000	3,000	8,000
					8,000 3,429,24

STP PMR – 15 Oct 2007





STP Program Overview



Milestones & Performance Measures

Upcoming Events

Accomplishments

Special Interest Items

Issues



FY07 MilestonesMilestones & Performance Measures



	PPBES Program	STP FY07 Milestones	Status	Planned Completion Date	Actual Completion Date	Responsible Person
AOP	Space Weather	Incorporate NGDC Virtual Radiation Belt Observatory into NASA Living With a Star (LWS) program for initial operating capability	С	(Q2) 3/31/2007	(Q2) 3/31/2007	Kihn
AOP	Space Weather	Demonstrate initial operating capability (IOC) for acquiring, processing and disseminating near real-time total electron content data to NWS/SWPC for US-TEC model	С	(Q2) 3/31/2007	(Q2) 3/31/2007	McLean
	Marine Transportation Systems	Generate 1st global grid of population numbers in povery estimated from satellite imagery	С	(Q2) 3/31/2007	(Q2) 3/31/2007	Elvidge
	Space Weather	Develop database management tools with SPIDR for the NGDC geomagnetic archive	Υ	(Q3) 6/30/2007		Kihn
	Space Weather	Develop & release next upgrade (Version 4.0) of the Space Physics Interactive Data Resource (SPIDR)	С	(Q3) 6/30/2007	(Q3) 6/30/2007	Kihn
AOP 🚃	Space Weather	Replicate operational GOES-13 Space Environment Monitor (SEM) relational database at NGDC - <i>Deferred</i>	С	(Q4) 9/30/2007	(Q3) 6/30/2007	Wilkinson
	Marine Transportation Systems	Produce an updated degree-720 crustal field model incorporating newly released marine & aeromagnetic data to improve Electronic Navigation Chart (ENC) nav models	С	(Q3) 6/30/2007	(Q2) 3/31/2007	Maus
	Marine Transportation Systems	Implement near real-timevisible and thermal global mosaic generation and online access system for nighttime DMSP Operational Linescan System (OLS)	С	(Q3) 6/30/2007	(Q3) 6/30/2007	Elvidge
AOP	Space Weather	Integrate Mirrion real-time ionospheric data access system with the Space Physics Interactive Data Resource (SPIDR) - Deferred	G	(Q1) 12/31/2007		Redmon
	Marine Transportation Systems	Implement at CORS-West the collection of GNSS data for essentially all active CORS on an hourly or daily basis & in a manner that is effectively independent of CORS-East	С	(Q4) 9/30/2007	(Q3) 6/14/2007	Prentice
	Marine Transportation Systems	Implement at CORS-West the OPUS utility to provide an automated GNSS data processing capability to Web clients in a manner independent of CORS-East - <i>Deferred</i>	G	(Q1) 12/31/2007		Coloma









NGDG Milestone Implement OPUS at CORS-West



Milestone – Implement at CORS-West the OPUS utility to provide an automated GNSS data processing capability to Web clients in a manner independent of CORS-East.

Background – NGS operates the On-line Positioning User Service (OPUS) as a means to provide GPS users easier access to the National Spatial Reference System (NSRS). OPUS uses the Continuously Operating Reference Stations (CORS) system to provide cmlevel, GPS-referenced geo-location. NGDC will implement OPUS at the Boulder CORS-West facility.

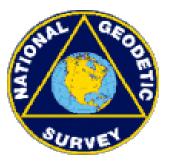
Status – FY07 milestone was deferred pending receipt of NGS hardware. Hardware has been received at NGDC and ISD has been requested to install the Blade Servers within available racks.

Completion Date: (deferred)

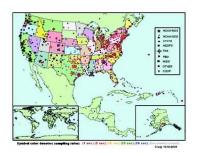
Planned: (FY08-Q1) 12/30/2007

Actual: Pending

Significance – Dual-site implementation of OPUS is part of COOP planning. STP PMR – 15 Oct 2007









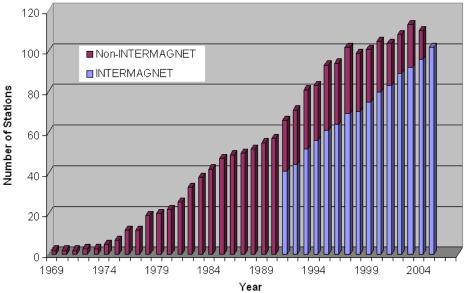


NGDG Milestone SPIDR Geomagnetic Tools



Milestone – Develop database management tools with SPIDR for the NGDC geomagnetic archive.





Significance: NGDC maintains significant magnetic observatory holdings within the WDC-SEG. The WDC can best serve its users by providing access to the magnetic data through a convenient and straightforward portal. Certain shortcomings in SPIDR are being addressed.

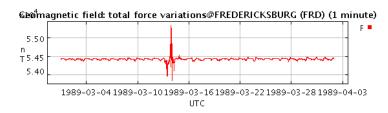
Background – The Space Physics Interactive Data Resource (SPIDR) includes magnetic observatory data from 581 stations for the period 1813 to present. Don Herzog continues to assist SPIDR developers in revising the geomagnetic pages to better serve the user communities.

Status – Don recently met with the SPIDR development team (Mikhail Zhizhin et al.) to provide advice and spur improvements.

Completion Date: (delayed)

Planned: (Q3) 06/30/2007

Actual: Pending





FY08 Milestones (Proposed) Milestone & Performance Measures



PPBES Program	STP FY08 Milestones	Status	Planned Completion Date	Actual Completion Date	Responsible Person
Marine Transportation Systems	Improve crustal magnetic field model from degree 100 to degree 120 by minimizing the impact of spurious magnetic anomalies in satellite magnetic datasets.	G	(Q1) 12/30/2007		Maus
Marine Transportation Systems	Produce radiance-calibrated, cloud-free, nighttime-lights composites for 2005-2006 using Defense Meteorological Satellite Program (DMSP) earth-imagery data.	G	(Q1) 12/31/2007		Elvidge
Space Weather	Achieve Initial Operating Capability for the Space Environment Impact System (SEIS) at the USAF Combat Climatology Center for use in battlespace M&S scenarios.	G	(Q2) 3/31/2008		Kihn
Space Weather	Release version 2 of VxOWare including improved support for on-demand services implemented through the Virtual Radiation Belt Observatory (ViRBO) framework.	G	(Q3) 6/30/2008		Kihn
Space Weather Develop Application Programming Interface (API) extensions for ordering datasets via the Comprehensive Large-data Array Steward System (CLASS).		G	(Q3) 6/30/2008		Kihn
Marine Transportation Systems	' I Mad with 3-ard second resolution using all available satellite.		(Q3) 6/30/2008		Maus
Release version 4.5 of the Space Physics Interactive Data Space Weather Resource (SPIDR) software including support to the International Heliophysical Year (IHY) research community.		G	(Q4) 9/30/2007		Mabie
Marine Transportation Systems	Implement an improved cloud-detection algorithm in real- time/static nighttime lights imagery products using 0.5-degree spatial resolution surface temperature grids.	G	(Q4) 9/30/2007		Elvidge
Marine Transportation Systems Create station-level metadata records for 80% of all operating magnetic observatories providing data to NGDC in compliance with FGDC and emerging ISO standards.		G	(Q4) 9/30/2007		Herzog
Marine Transportation Systems Train the Continuously Operating Reference Station - West (CORS-West) staff to run CORS data-management scripts and handle basic data collection errors & anomalies.		G	(Q4) 9/30/2007		Coloma
Marine Transportation Systems	Release version 2 of the degree-720 NGDC geomagnetic field model using a main magnetic field model plus contributions from the lithosphere and magnetosphere.	G	(Q4) 9/30/2008		Maus











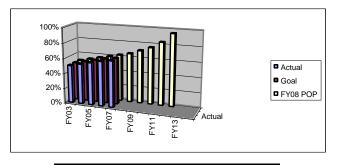
FY07 Performance Measures Milestones & Performance Measures



Performance Measures

1 -	Percentage of	archived	SWx d	lata a	available	to the	public	on-line
-----	---------------	----------	-------	--------	-----------	--------	--------	---------

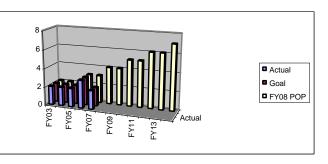
1 - Percentage of archived SVVX data available				
	Actual	Goal	FY08 POP	
FY03	50%	50%	50%	
FY04	53%	53%	53%	
FY05	56%	56%	56%	
FY06	59%	59%	59%	
FY07	61%	61%	62%	
FY08			65%	
FY09			70%	
FY10			75%	
FY11			83%	
FY12			95%	
FY13				
FY14				



Current Month: Sep 07					
This Q	Actual	FY07			
Planned	This Q/Total	Target			
61	61%/61%	61%			

2 - Improved retrospective products for understanding the space environment

Actual	<u> </u>	
Actual	Goal	FY08 POP
2	2	2
2	2	2
2	2	2
3	3	3
2	2	3
		4
		4
		5
		5
		6
		6
		7
	2 2 2 3	2 2 2 2 2 3 3



Current Month: Sep 07					
This Q	FY07				
Planned	This Q/Total	Target			
0	2/2	2			





STP Program Overview

Milestones & Performance Measures



Upcoming Events

Accomplishments

Special Interest Items

ssues



GPS/GNSS Workshop – 24-25 Oct

Upcoming Events



NGDC, SWPC, NGS, ESRL will host the workshop "Applications of GPS / GNSS in NOAA" at the DSRC on 24-25 Oct. This workshop will:

- Identify NOAA applications of GPS/GNSS
- Assess benefits to NOAA
- Raise awareness and share information
- Identify unmet needs or deficiencies
- Consolidate info & make recommendations
- 26 registered attendees representing NOS, NWS, NESDIS & ESRL (currently)
- 19 technical talks covering a broad range of topics concerning GNSS (currently)
- Special thanks to Janet Brown, Erin Rowand, Ben Tuttle & Justin Mabie

http://www.ngdc.noaa.gov/stp/gnssw2007/index.html









STP Program Overview

Milestones & Performance Measures

Upcoming Events



Accomplishments

Special Interest Items

ssues



Bradford W. Parkinson Award

Andria L. Bilich





Citation

"For graduate student excellence in Global Navigation Satellite Systems"



Dr Andria Bilich was awarded the Bradford W. Parkinson Award on 28 Sep at the GNSS-2007 meeting in Fort Worth, TX. Dr Bilich was also recently appointed to the *GPS Solutions* Editorial Board. Andria is an NGS

employee within STP.







Bradford Parkinson "GPS Architect"



Dr. Bilich "learns" that she has just won the Parkinson Award



NOAA Silver Medal Award







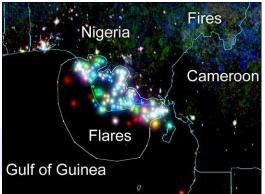
Citation

"For developing a technique to estimate current and historic rates of natural gas flaring through an effective use of satellite imagery data"

Dr Chris Elvidge was awarded the NOAA Silver Medal Award for 2007. Chris continues to find innovative applications for the DMSP nighttime lights and is often cited in various public forums. During this past year he was cited in the National Public Radio's Climate Connections series in a story titled "Gas Flaring Disrupts Life in Oil-Producing Niger Delta".

Gold and Silver Medal Awards







NGDC Director's Award Stefan Maus

NORA



Citation



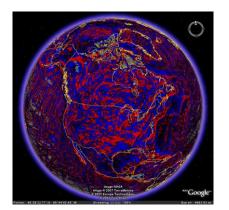




Dr Stefan Maus was awarded the highly coveted NGDC Director's Award for 2007. Stefan was recognized for his pioneering work in geomagnetic field modeling. In 2007 Dr Maus also received several prestigious appointments within AGU, EOS and IAGA.













STP Program Overview

Milestones & Performance Measures

Upcoming Events

Accomplishments



Special Interest Items

Issues



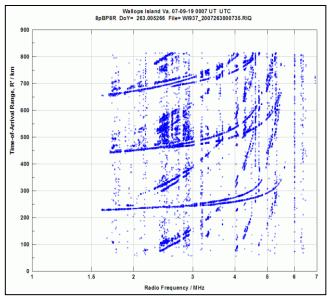
Special Interest Item "First Light" for Wallops Dynasonde



Background: Terry Bullett & Rob Redmon recently tested a new-generation ionospheric sounder at Wallops Island, VA. This new sounder, or dynasonde, is based on technologies developed within NOAA during the 70's and 80's and now redesigned by AFRL with modern digital receivers and high-power solid-state electronics. Initial measurements taken side-by-side at Wallops with a conventional digisonde show a marked improvement in the radar echo patterns for better ionospheric specifications.

Significance: NGDC continues to be a global leader in ionospheric sounding technologies.







Special Interest Item Decommissioning the Ramy Digisonde



Background: NGDC recently assisted the AF Weather Agency in dismantling the (previously) operational digital ionosonde at the Ramey AFB, PR which is now targeted for relocation to the USGS San Juan observatory near Cayey, PR. NGDC has significant expertise in constructing and operating ionosondes for the US Air Force at various locations world-wide. We are currently awaiting feedback from the NOAA Legal Office on a draft MOA with the USGS prior to reconstructing the replacement ionosonde at Cayay.

Significance: NGDC continues to improve its reputation as a leader in ionospheric sensing using ground-based ionosondes.









Licensed NOAA affiliate, Justin Mabie, dismantles the transmit antenna at Ramy AFB, PR

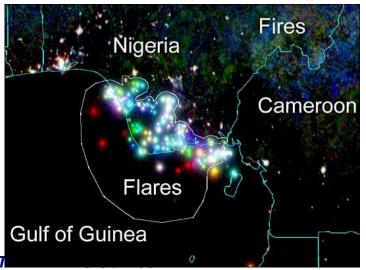


Special Interest Item NGDC Finding Cited on NPR









Background: NGDC recently produced the first globally consistent survey of natural gas flaring volumes using low-light imaging data from the DMSP satellites. These results were cited on National Public Radio's Climate Connections series in a story titled "Gas Flaring Disrupts Life in Oil-Producing Niger Delta". NGDC's results were also the basis of a story titled "Gas Flaring Culprits Named" in an oil and gas industry newsletter Energy Compass (v18, #30, pg 6, 27July07) published by the Energy Intelligence Group.

Significance: NOAA is recognized for its unbiased reporting. The Energy Compass article states that, "NOAA is known for the rigor and independence of its scientific analysis".

http://www.npr.org/templates/story/story.php?story

<u>ld=12175714</u>)

(http://www.energyintel.com/)





Special Interest Item SWPC – NGDC Summit





Representatives from SWPC and NGDC met on 28 August to discuss areas of mutual interest. Conversation focused on the roles for the Data Interface WG (DIWG) and the Archive Interface WG (AIWG). The flow of the conversation suggested that the role of the DIWG was more at the policy level (what do we need to do) for interactions between the organizations whereas the AIWG would tend to concentrate on the implementation aspects (how we do it). A possible re-write of the existing action items is:

- AI-3 The Data Interface Working Group (DIWG) is responsible for developing requirements for data flowing between NGDC and SWPC.
- AI-4 The Archive Interface Working Group (AIWG) is responsible for developing implementation plans in the form of submission agreements for data flowing between NGDC and SWPC.





STP Program Overview

Milestones & Performance Measures

Upcoming Events

Accomplishments

Special Interest Items



Issues

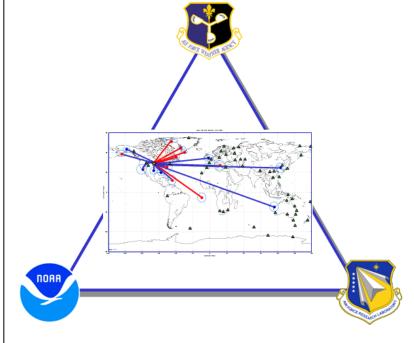


IssuesFederal Enterprise Ionosonde Network



Background: Some time ago, AFWA approached SWPC soliciting NOAA participation in a Federal Enterprise Ionosonde Network. The unstated goals for this enterprise were for NOAA to assume responsibility for the existing AF sites and to oversee the replacement program (NEXION). NOAA expressed some reluctance and AWFA decided to adopt a conventional acquisition approach through SMC.

Status: AFWA is still interested in having NGDC be responsible for the acquisition, processing and distribution of global ionosonde data and to advise SMC in the NEXION procurement. Still unclear is AFWA's position on the Cayey and Guam ionosonde deployments. NGDC should have some limited roll-over funding available for the ionosonde deployments.



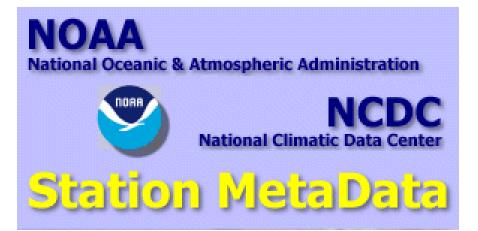
Federal Enterprise Ionosonde Network

Recommendation: None. STP is working with AFWA on a SOW for the mutually acceptable tasks. We are also attempting to clarify the future of Cayey and Guam.



IssuesStation-Level Metadata







Background: Ted Habermann and Dan Kowal coordinated an information session with NCDC (Jeff Arnfield & Andrea Fey) on available tools within the Multi-network Metadata System (MMS) for creating and maintaining station-level metadata records. STP is responsible for data from numerous geomagnetic observatories & ionosondes and is interested in tools that would allow data providers to enter & maintain their own station-level metadata. The Integrated Station Information System (ISIS) appears to be a useful portal for entering station metadata into the MMS. Dave Fischman will take the STP lead with EDS on application testing of the NCDC station metadata system.

Recommendation: None - Information only.





STP Program Overview

Milestones & Performance Measures

Upcoming Events

Accomplishments

Special Interest Items

Issues





FY07 Accomplishments

NORR

STP - A Year in Review

Significant Accomplishments for FY07:

- 60% increase (to 40) for continuous ionosonde station data now acquired and disseminated in NRT supporting the NOAA SWx program and USAF
- CORS-West attains operational status exercised COOP plan during scheduled blackout of CORS-East
- Acquired and archived 1074 station-years of hourly and 1-min definitive INTERMAGNET data for the period 1991 to 2005
- Developed prototype WMS and WCS for 2000-2003 global nighttime-lights composites, lunar-cycle composites and nightly global mosaics
- Deployed SPIDR V4.0 at 2 new locations in Grahamstown and Kamchatka incorporating new features and enhanced data management tools
- Developed and demonstrated new CLASS APIs to provide M2M access to NOAA satellite datasets and information
- Demonstrated capability for continuous replication of operational GOES-13 SEM data from the SWPC

STP Publications (CY07 YTD):

- Peer Reviewed Publications: 8 (CY06: 13)
- Conference Proceeding/Reports: 7 (CY06: 6)





QUESTIONS?

STP PMR – 15 Oct 2007